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ABSTRACT

The methods used by Australian farm managers to obtain the skills and knowledge needed to manage their businesses were examined. Semi-structured telephone interviews were conducted with 85 farm owners/managers from South Australia, the Northern Territory, Queensland, Tasmania, and New South Wales. The farmers interviewed identified a wide range of learning sources in the following categories: (1) training (formal and nonformal educational activities); (2) people who are not part of a training activity (other farmers, acquaintances, employees, consultants, and other experts); (3) print, audio, visual, and electronic media; and (4) experience and observation. Most farmers consulted multiple learning sources before altering their management practices. The sources for learning varied according to the purpose of the learning. Training was used relatively more often by those changing their methods of keeping records. All 85 businesses surveyed had used knowledge or skills gained from participation in at least one organized education or training activity in their farm management practices, including when making changes to their practices. However, people were the most frequently cited learning source for all changes, including new enterprise and record-keeping changes. Women were more likely to report learning from experience, whereas men were more likely to use organized training activities as a learning source. (Contains 22 references.) (MN)

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LEARNING ON THE JOB: HOW DO FARM BUSINESS MANAGERS GET THE SKILLS AND KNOWLEDGE TO MANAGE THEIR BUSINESSES?

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Abstract

Industry leaders and agricultural educators ('experts') believe that farmers should be participating in training about management and marketing, while few farmers plan to attend formal training in these areas. This paper examines the differing perceptions of experts and farmers in relation to farmers' management and marketing learning needs and the attitudes of farmers toward farm business management training.

More progressive farmers were proactive in identifying and meeting learning needs in management and marketing and were also the group most likely to have used training in learning for change, and to plan to train to meet learning needs in the future.

Most farmers used multiple learning sources when learning about management, marketing and management-related issues. Most used informal sources, mainly experts, supplemented by observation and experience, other farmers, and print and electronic media. Training was very rarely the only source used.

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Introduction

Farming today is a risky business. Those who survive will be good managers, able to deal effectively with the risks of markets, prices, climate and domestic policy changes (Department of Primary Industry and Energy, 1997). Survival depends on being aware of factors which may impact on the business, both opportunities and threats, and on the ability to make appropriate changes to management and agricultural practices.

Education and training is one way of learning the knowledge and skills needed to be aware of opportunities and threats and act in a way which benefits the farm business. Farmers have a lower level of formal educational qualifications than managers in other industries (Ferguson and Simpson, 1995). Practicing farmers have a relatively high level of participation in non-formal education and training activities. A recent study found that if a broader definition which includes seminars, conferences, industry meetings and field days is used, 80% of farm businesses participate in training during a year (Kilpatrick, 1997a). However, the majority of the training undertaken is in technical agricultural areas. In the next three years, only 19% of businesses planned to have someone involved in education and training in financial management and 20% in marketing, compared to 70% planning technical agricultural training (Kilpatrick, 1996).

Farm businesses are overwhelmingly small businesses: 99.6% of Australian farm businesses are family owned; most are managed by a 'team' of family members, the majority husband and wife partnerships, but multi-generational teams are also common (Australian Bureau of Agricultural and Resource Economics, 1996). Women have become increasingly active in both management and practical aspects of farm businesses (Rasheed et al., 1998; Gooday, 1995). Little is known about the individual roles of men and women in the learning and management that occurs in farm businesses, and the project reported here includes a focus on women's learning.

How do farm managers learn about management practices, and where do they obtain information about opportunities and threats for their business? What role do individual members of the management team play in the learning process? These questions are addressed using data from a project funded by the Rural Industries Research and Development Corporation.

What we know about farmer learning

Farms are small businesses. Like other small businesses, their owner/managers have a wide variety of skills and formal qualifications. Some want to maximise returns from their business, for others the lifestyle is more important than income (Gibb, 1997). They differ in the length of their experience in farming, and their farm business goals. A variation in styles, preferences and motivation for learning is to be expected. Field (1997) argues that most learning in small business is self-directed, experiential and action-oriented, therefore the emphasis on 'delivery' of training is inappropriate. Networks of

relationships with other firms and agencies are particularly important. Learning sources include major customers, other small businesses with technical expertise and suppliers. These learning sources are similar to the sources consulted by farmers in Kilpatrick's (1997a; 1996) study.

Seeking information is a part of almost every learning project which results in some changes to farm business management. Most changes to practice are influenced by interaction with, and information from, a number of sources, including print and electronic media, peers, experts and training activities (Kilpatrick, 1996). Most of the beef producers interviewed by Falk et al (1997) who had attended a quality assurance training day mentioned the rural press as their main way of keeping up with what was happening in the industry.

Farmers' preferences in relation to training delivery have been well documented (Kilpatrick, 1997b; Napier and Scott, 1994; Grannall, 1995; Johnson, Bone and Knight, 1996; Bamberry et al., 1997) and include local delivery, credible facilitators, short courses, relevance, flexibility, and project-based or action learning. These studies have identified a group of farmers who are threatened by formal and classroom education and training, often because of previous negative experiences at school. Other farmers are willing and able to participate in formal education and training, and accept a variety of delivery methods, including electronic.

Bamberry et al. (1997) and Kilpatrick (1996) noted informal sources of learning for farmers included family, neighbours, visits to other farms, providers of agricultural supplies and services, accountants, agricultural extension programs, and farmer-directed groups. Informal learning, combined with learning on the job, featured as the main source of education for many farmers in Bamberry et al's (1997) study. Many farmers were accustomed to having most of their learning needs met by government extension services, however, these have contracted in recent years in line with a general reduction in public services (Marsh and Pannell, 1998). Sloane Cook and King Pty Ltd (1995) noted that farmers, particularly more innovative and successful farmers, are becoming more proactive in gathering information from appropriate sources, and cite the role of a leading group of consultants in helping to meet farmers' information needs.

Farmer-directed groups such as Landcare and commodity-based discussion groups, to which more innovative and successful farmers are likely to belong, are becoming an increasingly significant source of farmer learning 'because they have the potential to enhance attitudinal and behavioural change in rural communities' (Bamberry et al, 1997, 42). There is evidence that these groups can and do contribute to learning in areas such as farm business management practices, benchmarking and analysis (Chamala and Mortiss, 1990) as well as information management and problem solving (Sloane Cook and King Pty Ltd, 1995). These groups are becoming an increasingly popular because the participants have control over what, how and when they learn, there is a focus on activities in which results are achievable, and the goals, direction and effectiveness of the group are being evaluated on a continuing basis (Woods et al. 1993).

Kilpatrick (1997b) drew attention to the role of interaction between participants at training activities in improving the effectiveness of the training. Effectiveness improved because participants were able to compare views on the way the material presented at the activity could be applied to their own situations and to test out each others' values and attitudes toward possible changes flowing from the training. Following a constructivist view of learning (Candy, 1991), such testing of others' values and attitudes assist in changing one's own values and attitudes, a necessary step before a change to practice can occur. Kilpatrick (1997b) also found that the group acted as a support network as they implemented new practices after the training was finished.

Methodololgy

A qualitative methodology was used in the project. Data was collected from semi-structured interviews with 85 farm owner/managers.

Sample

A random sample was drawn from lists held by five State and Territory farmer organisations, or state primary industry departments, as available. The States and Territories were South Australia, Northern Territory, Queensland, Tasmania and New South Wales. A total of 43 interviews were held with farmers drawn from these lists. Because of the focus on women farmers in the project, random samples were also drawn from women in agriculture organisation membership lists in the five States and Territories. Since there was no appropriate women's organisation in New South Wales, women were selected from the membership lists of farmer organisations in that State. The South Australian and Queensland women in agriculture groups are perceived by their office bearers to attract mainly high profile women who are active in agricultural industry organisations. Hence, the sample of women farmers from these states is likely to be biased toward those women who may be more aware of opportunities and threats to their own businesses, and possible strategies to benefit their businesses. This was taken into account in the data analysis. The total sample of women farmers was 42.

The sample broadly represents the spread of enterprise size and agricultural industries in Australia, for example the largest single group surveyed were from broadacre farms (40 of the 85) and broadacre farms comprise the majority of Australian farm businesses (Australian Bureau of Statistics, 1998). Comparison of the educational attainment profile of the sample with the national farmer education profile suggests that those with a low level of formal education are under represented. This was taken into account in interpretation of results of the data analysis.

Interviews

The 85 telephone interviews were based around a semi-structured questionnaire, and lasted an average of one hour. Farmers were sent a copy of the guiding questions after the interviews were arranged, and were encouraged to discuss the questions with other members of their farm management team in advance of the interview. The questions asked about changes that had been made to management practices, and the process that the farm team went through to gather information and learn how to implement the change. Farmers were asked to reflect on the process and comment on how useful the various learning sources had been in the process. They were also asked about past and planned education and training activities and demographic questions about formal educational attainment, age, composition of farm management team, farm enterprise(s) and area.

Data analysis

The interviews were transcribed and the transcripts were analysed for themes, with the aid of NUD*IST qualitative data analysis software. Themes were drawn from the literature and others were suggested by the data themselves. The large quantity of data (over 1200 A4 pages of transcripts) was initially examined in a quantitative manner to detect the most frequently occurring themes, then these, and other less frequent but potentially important themes were analysed in detail. The analysis was based around learning sources, learning purposes, attitudes or reflections on the learning process and demographic, risk management strategies and farm characteristics of those doing the learning. Cross-case analysis was used (Patton, 1990).

What sources are used in the learning process?

The farmers interviewed identified a wide range of learning sources that they used. These sources can be grouped into four broad categories: (i) training (formal and non-formal activities including: courses, seminars, workshops, farmer-directed groups and field days); (ii) 'people', not as part of a training activity (other farmers, acquaintances, employees, consultants and other experts); (iii) media (print, audio, visual and electronic); and (iv) experience and observation.

The sources for learning vary according to the purpose of the learning. Farmers were asked about changes they had made to their management and/or marketing practices. Most changes made use of multiple learning sources:

> I access journals, I access information from my network. Providing it is something that I want to follow up I will definitely contact the person on a one to one basis and extract the information. (Tasmanian mixed enterprise farmer)

The sources used for learning about the new practice varied according to the type of change they was subsequently implemented. There were differences between sources used for changes of a strategic nature such as increasing the area of the farm or starting a new enterprise (a new crop or type of livestock,

for example), and changes of a technical nature such as new record keeping practices or moving to minimum tillage. Technical changes were more likely to have training as a learning source. Strategic changes typically involved consulting more learning sources than technical changes. 'People' were frequently used as learning sources for all types of change. The categories of people consulted for information and advice are outline in a sub-section below.

The next two tables illustrate these findings by considering two specific kinds of change that were well represented in the data: strategic changes of starting a new enterprise and technical changes to record keeping. The first table records the number of sources consulted as a percentage of changes made. New enterprise changes tended to involve more learning sources than record keeping changes, 61% of new enterprise changes involved three or more sources compared to 37% of record keeping changes.

Table 1: Number of sources consulted for change

Number of sources Change	One	Two	Three	Four	Five or more	Number of changes made by sample
New Enterprise	28%	11%	17%	33%	11%	18
Record keeping	19%	44%	22%	11%	4%	27

Probability from the chi square distribution that new enterprise sources are distributed as record keeping sources is 0.0027%.

Table 2 shows the relative use of categories of learning sources in learning for the two kinds of change. Training was used relatively more often in record keeping changes.

Table 2: Learning sources for changes

Source Change	Training	People	Media	Observation and experience	Total number of sources consulted for all changes made by sample*
New Enterprise	6%	67%	13%	17%	53
Record keeping	30%	51%	2%	17%	66

* Consulting, say, two different people about a new enterprise is recorded as two consultations in the 'people' category.

Probability from the chi square distribution that new enterprise sources are distributed as record keeping sources is less than 0.0001%.

The contrast between the learning sources used to learn about a new way of record keeping and the learning involved in a starting a new enterprise is illustrated by the following two quotes. In the first, a Queensland farmer talks about learning about computerised record keeping from a single source, an accountant:

> We got a computer and then ... we went to our accountants who are in Brisbane, and I said which program will we get and they said "Oh, QUICKEN". So ... I went down and had a two hour session down there with them and ... I learnt quite a bit and I've been since putting all our financial records on it. (Queensland female farmer)

The second quote is from a farm family who started cattle breeding after the son studied agriculture at school. The father attended a course, read books, asked questions of experts and drew on past experience as further sources of learning:

> The way that we started in beef cattle was [my son] did the cattle handling at school... then he wanted to start his own stud... I did a pasture management course. I worked for 2 years [at a research farm]. I was asking a lot of questions ... and reading the books, there was beef cattle and stud breeding and how you manage a small property. (Tasmanian cattle breeder)

Training

All 85 businesses in the sample used knowledge or skills gained from participation in at least one organised education or training activity in their farm management practices, including when making changes to their practices. The various types of education and training activities that the farm managers drew on in their farm management practices are summarised in the following table.

Table 3: Training as a learning source for management practices

Type of training	Proportion of farm businesses that drew on training type
Field days	74%
Seminars and workshops	71%
Farmer-directed groups	67%
Accredited courses	75%
Non-accredited courses	56%

Examination of the types of training used as learning sources for our examples of strategic (new enterprise) and technical (record keeping) changes shows that the new enterprise changes drew on training from seminars, farmer directed-groups and accredited courses. Training used in making changes to record keeping most frequently was a course or workshop on computerised record keeping.

Field days were favoured because they provided a variety of information sources which were accessible to all management team and family members, while associated field trips provided organised access to other properties often in different areas or different States. Here a farmer talks about learning from field days, and how personal contact details can be useful later to access further learning sources:

> The DPIF field day at [Location X], to their credit, that's worth attending. The delivery of that varies over the years, or has done. The last one was good in that they covered a range of crops and enterprises quickly and briefly and then we had we were given notes... and there were contacts, like contact phone numbers and names, if you wanted to follow up something further at another time. [Tasmanian farmer]

Group learning was widely used with more than two-thirds of participants having participated in a farmer-directed group learning situation. Initial involvement in a group situation often later led to participants feeling free to contact other participants to gather information or to access a second network. The importance of the social interaction which can occur around a group learning activity emerged from the data. Many participants said that they learnt as much from interaction with others during breaks or in discussion than from the 'official' part of the meeting. Here there is a merging of informal and non-formal or formal learning activities, as seen from the following quotes:

> They were far and away the best, the agricultural bureau meetings. And I don't know about the speakers, I think [the best was] probably the discussion generated from the speakers. (South Australian broadacre farmer)

> Well, I suppose it's from feedback really from your stock agents and the DPI men...and also other people's experiences from around the same area. That's where your field days and PMP [Property Management Planning seminars] come in handy because everyone's got a story to tell about what happened to them. (Northern Territory cattle producer)

People

Every survey participant except one indicated involvement in some form of one-on-one informal learning from other people. People were the most frequently cited learning source for all changes, including new enterprise and record keeping changes (see Tables 1 and 2). Family, other farmers, consultants (government and private), financial experts and suppliers (for example, rural merchants) were all used as learning sources. Table 4 shows which of these categories of people were used in making the two kinds of change, new enterprise and record keeping.

Table 4: People used as learning sources for change

Source / Change	Other farmers	Family & employees	Government extension officers	Accountants & financial advisers	Other experts*	Suppliers	Total number of people consulted for all changes of type made by sample
New Enterprise**	26%	3%	29%	0%	35%	6%	34
Record keeping**	15%	18%	12%	38%	12%	6%	34

*Includes private consultants, agricultural organisation representatives, researchers, lawyers.
** Totals do not sum to 100% due to rounding.
Probability from the chi square distribution that new enterprise sources are distributed as record keeping sources is less than 0.0001%.

Not surprisingly, accountants and other financial advisers were the most frequently consulted group for record keeping changes. A wide variety of experts, including government extension workers based in departments of primary industry, were the main source used for new enterprise changes. This farmer activity sought out and used other farmers and experts in a new enterprise learning process:

> With us being in a new area, we sought out the locals very much, and asked them "what do you do". We heard that there was this opportunity to get into this ... chiller game meat thing. ... It's sourcing the locals first and then going a bit further and then involving DPI and that sort of thing, and lot's of phone calls. You've got to go chasing it. It doesn't fall in your lap. (Northern Territory livestock producer)

A number of advantages of using people in one-on-one learning situations emerged from the data. They can be summarised as: contextualisation to a particular farm business, customisation to a particular learner's needs, and a way of accessing, sifting and prioritising information from a large number of other sources.

Being able to apply learning to the particular farm business context was important enough for this farmer to consider pay someone to travel to their isolated property:

> We're just left with a program and a very large manual. And that's a real problem. And all our bookwork is here, so I can't actually take everything into town ... In fact I've been thinking, of paying for someone to come over from Toowoomba. (Northern Territory broadacre farmer)

In one-on-one learning, the informant customises the information which is supplied as the learner asks questions and makes comments. This assists the learner apply the information to their own situation. This farmer explains the advantages of one-on-one learning over reading:

> If you can talk to them face to face, you can question them and that sort of thing, and ... they'll tend to give you more information and a clearer picture on things, rather than just reading about things in a magazine... When you're speaking to someone in person, you're getting also their ideas, and different ways of, you know, putting together a breeding program, etc. It is very useful. (NSW broadacre farmer)

Farm consultants are an increasingly popular source of learning, as government departments of primary industry reduce their services in line with a general trend of decreasing public sector services. Better risk managers in the sample saw that a major advantage of using a consultant was the consultant's capacity to see a number of businesses operating a particular system, and ability to apply those experiences to a particular client's situation. Another perception was that people who used consultants were 'thinkers' and thus the consultants were coming in contact with a whole range of ideas which may not otherwise have been shared, as this quote illustrates:

> I found not so much that the farm consultant knew everything I wanted, but quite often the people that were attracted to a farm consultant were often thinkers themselves and I found that if you could pull a think tank situation you often got some ideas which you normally wouldn't get. So, I have used farm consultants. (South Australian broadacre farmer)

A single person learning source, a farm consultant, is thus seen as a way of tapping into a large number of other sources. Many farmers like to have someone 'sort' the information (and training opportunities) available for them, and draw their attention to those that would be best for their particular situation. This sifting and prioritising function was once performed by government departments of primary industry.

> There is just too much information available these days, it's too much to read... But the way to gain information, I think,... is probably through [the government extension officers] and all those type of guys, because they've basically picked out the relevant information for our area and can then say "well go to this source or that source or try this or try that". They've already picked their way through it and can summarise it for you quickly. (South Australian broadacre farmer)

The contraction of the government extension services has not necessarily made a big difference to the information and training available to farmers. What it has taken away is a customised sifting and prioritising service. The removal of these free services has left a void that some farmers are filling through industry organisations, the data includes examples from the cotton, grain, livestock, citrus, alkoloids and mangoes.

> Every two years we have what's called a Cotton Conference that's very good because it's a terrific cross-pollination between growers from all over Australia from different districts. I think the best source is actually growers. They also have lectures and presentations from people right throughout the industry.... So, you get a nice blend of scientific and practical. Both people and problems. (NSW cotton farmer)

Media

Approximately one quarter of the farm businesses surveyed have access to the internet, while others indicated they would like to access the internet. Inadequate telephone infrastructure prevented access for three farm businesses. Other media sources used were print media, radio and television. Some farmers mentioned that because of the time delay in preparing and publishing journals, the information was often out of date when it was received. Those who had access to the internet used it mainly for marketing information (stock market reports, futures trading, commodity prices) and to search for information relating to production issues or potential new enterprises. The benefit of the internet was instant access to up-to-date local and overseas information from a wide variety of sources, as the following quote indicates:

> I probably get most of my information and have learnt quite a lot from e-mail discussion lists... There's all sorts of consultants and professors and farmers and all sorts of people that are interested in growing grass ... mainly (from) the States and England and Ireland and South America and Australia ... it's instant, ... and it's up to date ... I've got more out of that in 12 months than I've learned in my whole farming career. (Tasmanian broadacre farmer)

Experience and observation

Experience and observation were important sources of learning. Over one third of respondents reported learning about new practices by travelling overseas to observe how products were marketed, or to see potential new enterprises. As discussed in the training section above, field days are a popular learning source because they allow observation of practices in operation, and give participants the opportunity to question those involved in the implementation of the practices. Over half of the sample had travelled independently to learn by observing 'new' practices in operation, like this mango grower:

> I've made a point in the last 3 or 4 years of travelling around Australia and looking at every other mango operation to make sure that we shorten our learning curve, and are abreast of all the latest ideas. (Northern Territory horticulturalist)

How do women contribute to learning for the business?

There was little variation in the numbers of categories of learning sources used by men and women, although women were more likely to report learning from experience and men were more likely to use organised training activities as a learning source. Further investigation revealed that most of women's experiential learning related to learning technical practices, including record keeping. As Table 5 shows, some learning activities are undertaken jointly by male and female members of the farm team. Table 5 includes all learning about management practices, it is not restricted to learning for change.

Table 5: Proportionate use of various learning sources by females and males

Source Who used source	Training	People	Media	Observation and experience	Total
Female	24%	28%	19%	30%	100%
Male	36%	32%	14%	18%	100%
Joint*	26%	34%	17%	24%	100%

* Joint refers to learning undertaken by males and females together, for example a husband and wife speaking to a consultant together, of both attending a field day.

Learning activities are often shared between family members. For example, a Northern Territory cattle property was run by a husband and wife, the husband's brother and the couple's two adult children. The wife and her daughter did several computer courses to learn how to computerise the business records. They also attended a home stay hospitality course to learn how to improve the accommodation sideline of the business. Several members of the family participated in property management planning training, and the men had attended a number of technical agricultural courses, including pig dressing.

A number of women were the information gatherers and sifters for their businesses. They sought out and analysed the information, and passed on only what they saw as relevant:

> I think it's probably easier for me to go and relate the messages back because [husband and son] are usually flat out doing things on the farm. So, unless it's particularly what they want to hear about they usually send me on them. That way I can wade through all the information and give them what's relevant to our concern. It works out well that way. [South Australian dairy farmer]

There are a variety of barriers facing women farmers who want to become more involved in learning and training. This woman farmer found male domination at field days off-putting:

> It's very male dominated and I find it very frustrating to go to these days and you're pushed to the side and 'Ha Ha, and what would she know', type of thing, and I don't claim to know heaps. I'd like to learn, but it's very off-putting. [Tasmanian mixed enterprise farmer]

Contrast this with the experience of this woman farmer from South Australia who joined a women-only group. She also liked the flexibility and chance to customise learning through questions as well as the variety of learning sources available through the group, which included meetings, written material to be worked through at home and a mentor system:

> I joined another group, it's called Enterprising Women... and because it was geared towards women and small business I guess I felt a bit more confident about turning up and saying "well I don't know anything about this"... You can go along at your own level of experience and learn from this... you could do them in a morning, like from 9 till 12 and they keep them to a small group so that you've got a chance to ask questions about your particular things.... A sort of a mentor system... it's great to be a part of this group with these particular women in it because you can really gain from their experience and everybody has been very friendly. [South Australian farmer]

A number of women preferred a discussion-style format for training. The second quote reminds us that childcare is an issue for many farmers who want to attend training:

> I don't think anything is as good as the actual face-to-face or hands-on type learning, no. I think that's probably the best way to learn simply because you can get that personal interaction between yourself and the lecturer. [South Australian farmer]

> The Meat Research Council put out a course called working in groups... which was just fabulous... and it was totally free... even accommodation and childcare were provided. Childcare is a really big issue. [Queensland cattle producer]

Conclusion

Farm businesses access a wide variety of learning sources for learning about management practices. They make extensive use informal learning sources, especially other people, sometimes in combination with organised education or training activities. Learning for strategic management changes, such as starting a new enterprise, tends to involve more learning sources than learning for technical management changes. Training is more likely to be used for technical than strategic changes. This could be partly because organised training for technical change is more readily available in a format which research has identified that farmers prefer (Kilpatrick, 1997b; Napier and Scott, 1994; Grannall, 1995; Johnson, Bone and Knight, 1996; Bamberry et al, 1997). One-on-one learning is valued because in permits contextualisation to a particular farm business, allows customisation to a particular learner's needs, and is a way of accessing, sifting and prioritising information from a large number of sources. In some industries, industry associations are filling a void left by the contraction of government extension services. Farmers value the information, training and opportunities for sharing information and experiences which they provide.

Farm management teams share learning activities among the members. Similar learning sources are accessed by men and women farmers. In some farm businesses, women act as information gathers and sifters, sharing with the team only information deemed relevant. There are some barriers to women's participation in training activities.

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